

WHAT IS CLAIMED IS:

1. A modular air handler for a quick chill and thaw system for a refrigerator, said air handler comprising:

a first damper element adapted for flow communication with a supply of air;

an air supply flow path in communication with said first damper element;

a fan in said supply air supply flow path for discharging air from said air supply flow path; and

a return flow path in flow communication with the supply of air.

2. An air handler in accordance with Claim 1 further comprising a recirculation flow path for mixing air discharged from said air supply flow path with air in said air supply flow path.

3. An air handler in accordance with Claim 1 wherein said first damper element comprises a dual element damper comprising first and second air supply ports, said first airflow port in flow communication with said air supply flow path.

4. An air handler in accordance with Claim 3, said return flow path in flow communication with said second airflow port.

5. An air handler in accordance with Claim 4 further comprising a second damper element comprising an airflow port, said second damper element in flow communication with said air supply flow path and said return flow path.

6. An air handler in accordance with Claim 1 further comprising a heater element for warming air in said air handler.

7. An air handler in accordance with Claim 6 wherein said heater element comprises a foil heater element.

8. An air handler in accordance with Claim 2 further comprising a temperature sensor in flow communication with at least one of said re-circulation airflow path and said return flow path.

9. An air handler in accordance with Claim 1 further comprising a forward portion and at least one light source mounted to said forward portion.

10. An air handler in accordance with Claim 9 wherein said light source is externally mounted.

11. An air handler in accordance with Claim 1 further comprising a vane positioned in said supply airflow path downstream from said fan so that said fan discharges air from said supply airflow path through said vane.

12. An air handler in accordance with Claim 11 wherein said vane includes a plurality of contoured fins for dispersing air laterally as air is discharged through vane.

13. An air handler in accordance with Claim 12 wherein said vane includes a plurality of substantially longitudinally extending fins.

14. An air handler in accordance with Claim 13 further including a laterally extending fin member joining said longitudinal fins.

15. An air handler in accordance with Claim 12 wherein said vane includes a bottom surface, said fins extending at an angle from said bottom surface.

16. A quick chill and thaw system for a refrigerator including a first compartment at a first temperature and a second compartment at a second temperature, said quick chill and thaw system comprising:

a pan; and

an air handler comprising an air supply flow path and a fan for drawing air through said air supply flow path from the first compartment and into said pan, and a return flow path for returning air from said pan to the first compartment.

17. A quick chill and thaw system in accordance with Claim 1 further comprising a re-circulation path for mixing air from said pan with air in said air supply flow path.

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18. A quick chill and thaw system in accordance with Claim 16 wherein said air handler is configured to deliver air into said pan from above and behind said pan.

5 19. A quick chill and thaw system in accordance with Claim 16 wherein said air handler further comprises a heater element for warming air inside said air handler.

20. A quick chill and thaw system in accordance with Claim 16 wherein at least one of said pan and said air handler comprises a light source for illuminating said pan.

10 21. A quick chill and thaw system in accordance with Claim 16 wherein said pan comprises a sliding cover.

22. A quick chill and thaw system in accordance with Claim 16 wherein said pan is configured for slide-out access thereto.

23. A quick chill and thaw system in accordance with Claim 16 further comprising a duct member adapted for establishing flow communication between said air supply flow path and an air supply.

24. A quick chill and thaw system in accordance with Claim 23 wherein said duct member comprises a supply duct and a return duct.

20 25. A quick chill and thaw system in accordance with Claim 23 wherein said air supply comprises a freezer compartment.

26. A quick chill and thaw system in accordance with Claim 23 further comprising an adapter for establishing flow communication between said air supply and said duct member, said adapter apportioning a percentage of said flow communication to said air handler supply airflow path.

25 27. A quick chill and thaw system in accordance with Claim 24 wherein said percentage is about 40%.

28. A quick chill and thaw system in accordance with Claim 16 further comprising a tray in said pan for improving airflow therein.

29. A quick chill and thaw system in accordance with Claim 28 wherein said tray includes markers for placement of items on said tray.

30. A quick chill and thaw system in accordance with Claim 16 further comprising a rack for positioning items within said pan.

5 31. A quick chill and thaw system in accordance with Claim 30 wherein said rack comprises a chill side and a thaw side.

32. A quick chill and thaw system in accordance with Claim 16 wherein said air handler is adapted for rapid chilling and refrigerated thawing of items placed in said pan.

10 33. A quick chill and thaw system in accordance with Claim 32 wherein said air handler is operable in a chill mode, said air handler moving air at a temperature of about 21°F in said chill mode.

34. A quick chill and thaw system in accordance with Claim 32 wherein said air handler is operable in a thaw mode, said air handler moving air at a temperature and velocity that maintains a surface temperature of a thawed item within acceptable limits.

35. A quick chill and thaw system in accordance with Claim 34 wherein said air temperature is about 40°F to about 50°F.

20 36. A quick chill and thaw system in accordance with Claim 35 wherein said air temperature is about 41°F.

37. A quick chill and thaw system in accordance with Claim 34 wherein said air handler is operable in said thaw mode for a selected period of time.

38. A refrigerator comprising:

a fresh food storage compartment;

25 a freezer storage compartment;

a mullion wall separating said fresh food storage compartment and said freezer storage compartment;

a pan mounted in one of said fresh food compartment and said freezer compartment; and

an air handler mounted in one of said fresh food compartment and said freezer compartment and placed in flow communication with the other of said fresh food and freezer compartment through said mullion wall and further in flow communication with said pan, said air handler adapted for producing convective airflow within said pan at a decreased temperature relative to a temperature of said fresh food compartment when in a quick chill mode, and an increased temperature relative to said temperature of said fresh food compartment when in a thaw mode.

39. A refrigerator in accordance with Claim 38 wherein said pan is mounted in said refrigerator compartment.

40. A refrigerator in accordance with Claim 39 wherein said pan is mounted in a bottom portion of said fresh food compartment.

41. A refrigerator in accordance with Claim 38 wherein said air handler is mounted in said fresh food compartment.

42. A refrigerator in accordance with Claim 41 wherein said air handler is substantially horizontally mounted.

43. A refrigerator in accordance with Claim 42 wherein said air handler is configured to deliver air into said pan from above and behind said pan.

44. A refrigerator in accordance with Claim 38 wherein said air handler comprises an air supply flow path and a fan for discharging air into said pan.

45. A refrigerator in accordance with Claim 44 wherein said air handler further comprises a return flow path for returning air from said pan through said mullion wall.

46. A refrigerator in accordance with Claim 45 further comprising a re-circulation path for mixing air from said pan with air in said supply flow path.

47. A refrigerator in accordance with Claim 45 wherein said supply flow path is positioned between said return path and said re-circulation path.

48. A refrigerator in accordance with Claim 38 wherein said pan comprises a slide-out pan.

49. A refrigerator in accordance with Claim 48 wherein said pan comprises a sliding cover.

5 50. A refrigerator in accordance with Claim 38 further comprising a vane for dispersing air from said air handler within said pan.

51. A refrigerator in accordance with Claim 38 wherein at least one of said pan and said air handler comprises a light source for illuminating said pan.

sub 10 7 52. A refrigerator in accordance with Claim 1 further comprising a plenum extension in flow communication with said air handler for distributing air within said pan.

53. A quick chill and thaw system for a refrigerator including a fresh food compartment, said quick chill and thaw system comprising:

a pan; and

an air handler in flow communication with said pan, said air handler including a heater element and configured for discharging air into said pan at an increased temperature relative to a fresh food compartment temperature.

54. A quick chill and thaw system in accordance with Claim 53 wherein said air handler is configured for discharging air at a temperature and velocity to maintain a surface temperature of a thawed item within acceptable limits.

55. A quick chill and thaw system in accordance with Claim 54 wherein said air temperature is about 40°F to about 50°F.

56. A quick chill and thaw system in accordance with Claim 55 wherein said air temperature is about 41°F.

25 57. A quick chill and thaw system in accordance with Claim 54 wherein said surface temperature is about 41°F.

58. A quick chill and thaw system in accordance within Claim 53 wherein said air handler further comprises an air supply flow path and a return flow path.

59. A quick chill and thaw system in accordance with Claim 58 further comprising a damper element in flow communication with said supply flow path and said return flow path:

60. A quick chill and thaw system in accordance with Claim 58 further comprising a re-circulation flow path for mixing of air in said air supply flow path with air from said re-circulation path.

61. A quick chill and thaw system in accordance with Claim 60 wherein said supply flow path is positioned between said return flow path and said re-circulation flow path.

62. A quick chill and thaw system in accordance with Claim 53 wherein said heater element is a foil-type heater element.

63. A quick chill and thaw system in accordance with Claim 53 further comprising a plenum extension for distributing air within said pan.

64. A quick chill and thaw system for a refrigerator comprising:

a pan;

an air handler adapted for producing convective airflow within said

pan; and

a rack inside said pan for positioning items placed therein.

65. A quick chill and thaw system in accordance with Claim 64 wherein said rack comprises a chill side and a thaw side.

66. A quick chill and thaw system in accordance with Claim 65 wherein each of said chill side and said thaw side comprises a plurality of longitudinal members configured to orient food and beverage items at optimal positions in said pan.

72. A quick chill and thaw system in accordance with Claim 70 wherein said tray further comprises a handle.

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